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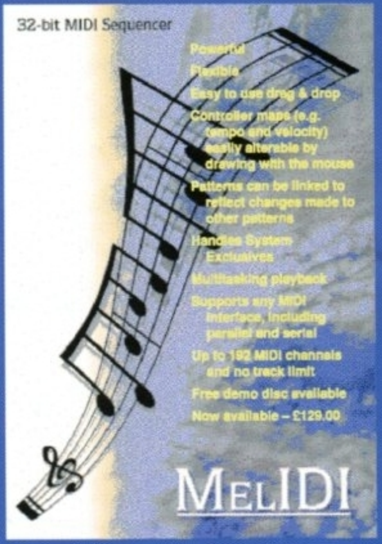


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Editor's Comments

I bet you weren't expecting that? Okay, I admit it, neither was I. But that big things were afoot was certainly on the cards. The fact that we even had an article that was talking about the branding and positioning of RISC OS was certainly timely.

So what can we look forward to in the future? From the press release that you can read on the news pages of this issue you will be able to see that Jack Lillingston of Castle is not looking to put all his eggs in one basket.

He is going to be working with another company and getting RISC OS-based consumer products into the market place in a big way.

You might liken this to the activity of ARM Ltd. The fact is that there are more, many many more, ARM chips in use in the world than there are Pentium chips of whatever variety. It's just that you don't see them. Just about every mobile phone has an ARM chip and there are a lot of other places they are put.

What we will be hoping to see with RISC OS is the extension of the use of RISC OS (now that it is 32-bit) into a whole multitude of alternate products. The only "problem" with that is that, as with ARM, the user will neither know nor care that the system they are using is running on RISC OS.

However it does matter to the "Trade" what is running, companies that produce mobile phones are aware that they are driven by ARM. This in turn means that they know that they have a reliable chip on their hands that does not absorb a lot of power.

The same will have to become true of RISC OS. It may take quite a bit of work, and we're talking marketing here not programming, to make RISC OS the operating system of choice. But when you consider how many ARM chips there are it becomes reasonable to promote the operating system that is tailor-made for it.

What then happens to the RISC OS desktop market? Well as Jack pointed out at least RISC OS is owned by a company that actually cares about the desktop market now. Obviously Iyonix will be continued and expanded as a product and we will look to having the excellent Select Scheme improvements incorporated into RISC OS 5. Eventually going back to a single operating system and frankly that is not a moment too soon.

This one act was wiped out the divisive break-up of the market, not instantaneously, but over a period of time perhaps six months maybe a little longer. At that point we will see all the strands of the market coming back together and we can move forward as a single unit again.

Rob Donaldson
aueditor@acornuser.com

Castle answers

Castle have made available a Frequently Asked Questions page on their Web site answering many of the questions people are asking about their recent acquisition of RISC OS from Pace Microtechnology. We have reproduced portions of it here which will go some way to answer concerns that many people have about the purchase.

Q. Will RISC OS 4, Select and RISC OS 5 merge?
A. RISC OS 5 already contains most of the enhancements from RISC OS 4, however not all of the Select features apply to non-desktop applications.

Additionally care must be taken to avoid RISC OS losing its competitive edge in other fields, with increased code size and loss of performance.

Castle wish to maintain only one source tree, so RISCOS Ltd will continue to produce Select (containing Desktop specific features) and Castle will encourage RISCOS Ltd to migrate this to RISC OS 5.

Q. What does this mean for other hardware developers such as MicroDigital Limited and RiscStation Limited?
A. There are no changes to the current position; they can continue to ship their RISC OS 4 desktop computers; the only difference is that Castle now holds the head licence instead of Pace.

Q. I want a licence to use RISC OS; must I apply to Castle to get one?
A. Not necessarily. A number of companies have the ability to grant 3rd party binary licences for RISC OS, for example RISCOS Ltd can license RISC OS 4 for desktop computers. In addition they could also apply to Castle for an extension to include new hardware, there are no plans at all to withhold permission to any genuine volume applicant.

Q. Castle make hardware, isn't it a conflict of interests to also own the operating system?
A. No. Historically Acorn made hardware and owned the operating system, but didn't license RISC OS to competitors. The exciting difference here is that there is now the ability for 3rd parties to produce/market ARM based products featuring RISC OS, there would be no conflict as Castle will benefit from royalties for these products. As covered in the press release on July 4th Castle will forge new partnerships with mass-market consumer companies, this should become a major use for RISC OS in the future.

Q. What about Browse, can I expect any updates?
A. Sadly after years of frozen development Browse is now a long way behind in its standards compatibility. Though upgrading it to handle HTML4 and newer Javascript is theoretically possible, this is a huge task. As Oregano 2 already offers these features, and with the recent announcement of its use in the Playstation 2, a huge amount of investment is being made in Oregano which should be very easy to port back to RISC OS in future versions of Oregano.

Q. Will a version of RISC OS 5 for the Risc PC and A7000 be released?
A. Although a simple HAL (Hardware Abstraction Layer) for IOMD-based machines does exist for testing purposes it would require an unfeasible amount of work to turn it into a production-quality version.

Additionally running in 32-bit mode on an old processor which still supports 26-bit mode doesn't really bring any benefits. 32-bit applications will of course still work on these machines (fitted with a 26-bit version of RISC OS) and can also use the new 32-bit APIs through the free CallASWI module, SharedCLibrary, and HAL module in a fully backwards-compatible manner.

The HAL module referred to above is available from:
WWW.CHIARK.GREENEND.ORG.UK/~THEOM/RISCOS/OTHERSOFT.HTML

Q. When can I buy a legal version of RISC OS for emulation on my PC?
A. Emulator authors wishing to ship RISC OS for non-ARM platforms will be contacted shortly. It is expected that there will be a number of solutions available over the next few months.

Q. This is all very confusing! Who does what?
A. Put simply: RISCOS Ltd will continue to produce versions (including Select) of RISC OS 4. Castle also will encourage the production of a version of Select for RISC OS 5.

Pace continue to develop, produce and sell the DSL4000 IP gateway from their Cambridge-based office.

Castle continues to ship its lightning-fast Iyonix PC range, as well as granting new licences which don't overlap any existing exclusivity.

Tematic Ltd would be the first point of call for all new embedded versions of RISC OS.

Q. What new hardware is on the cards?
A. With the hardware abstraction layer (HAL) and fully 32-bit operating system, RISC OS can run on all ARM devices including ARM9, ARM10, ARM11 and XScale devices as and when they become available. Specific new hardware will depend on what individual companies negotiate with Castle.

Q. Is anyone working on an ARM laptop now?
A. As with previous attempts the major stumbling block is sourcing a case which has a long enough lifespan to be able to ensure supply. This doesn't rule out the possibility of selecting one of the many ready-made A4-sized industrial tablets based on fast ARM9 and XScale technology.

Oregano gets new flavour

Castle have appointed a new and exclusive distributor for their Oregano 2 RISC OS Web browser. From the 1st August 2003 Oregano UK Ltd will be responsible for all sales, marketing and technical support for Oregano 2.

Oregano UK Ltd was founded by Richard Brown, a RISC OS dealer based in Southend-on-Sea. Richard Brown is well known within the RISC OS community and has a comprehensive knowledge of RISC OS. Richard said "I am delighted to be taking over the distribution and support of Oregano 2. Oregano UK have plans to continue the development of Oregano 2 building on the work that Oregan Networks Ltd are constantly doing for their generic browser. This will ensure that web browsing on the RISC OS platform is kept as up-to-date as possible."

Oregano 2 continues to be produced by Oregan Networks Ltd, and original copies of Oregano 1 will continue to be supported by Castle.

Jack Lillingston, Managing Director of Castle, said, "We are delighted to be able to work with Richard. This deal ensures that we can focus all of our attention on selling RISC OS to a wider audience." He added, "We wish Richard every luck in this venture and look forward to a continuing close relationship that will benefit everyone."

The Oregano 2 Web browser continues to be shipped as a free application on the Iyonix PC, Risc PC and A7000+, and is also to be the "browser of choice" on the UK Sony Playstation 2, which bodes well for any future development finding its way back into the RISC OS version.
www.iyonix.com
www.oreganouk.net

Faster Descent

RCI have released 32-bit enhanced versions of their Descent 1 and Descent 2 games for RISC OS machines.
The enhancements are as follows:
Descent 1

- 32-bit safe, Iyonix-compatible
- Includes performance enhancements from Descent 2 giving improved frame rate
- Bi-linear filtering for smooth textures close up, giving a 3D-accelerated look/feel
- Transparency effects
- Improved lighting model on enemy ships, results in more in-depth gameplay as light/darkness plays an important role
- High resolution images to replace the original low resolution art
- Higher resolution gameplay in 8/16/32bpp screen modes (as Omega and Iyonix allow higher resolution video modes)
- New sound system with 16-bit audio support

Descent 2

- 32bit safe, Iyonix-compatible
- High resolution and low resolution movie sequences, movies can run from hard disc or from CD
- Performance enhancements for smoother gaming
- Milli-second timing gives smoother play
- New sound system with 16-bit audio support, and high quality audio effects
- Improved lighting model on enemy ships, results in more in-depth gameplay as light/darkness plays an important role

Descent 2 already included things like bi-linear filtering, transparency, high res/high colour graphics and so on. The upgrade pack contains both and costs £15 inclusive for existing owners.

While this update is clearly targeted at Iyonix owners, StrongARM RiscPC users may well also benefit from this update, and new features such as the Descent 2 movies work on those machines too.

The Descent games are 3D action games, played from a first person perspective from the cockpit of a spacecraft. The player explores various enemy occupied mines in a fully 3D space (including above and below). Please see **www.rcomp.co.uk** which contains more information.

R-Comp Interactive, 22 Robert Moffat, High Legh, Knutsford, Cheshire WA16 6PS. Tel: (+44/0) 1925 755043 Fax: (+44/0) 1925 757377 Web: **www.rcomp.co.uk**

Debian Linux for Iyonix

Peter Naulls, Castles' Linux expert, is now offering CDs containing the Debian Linux distribution suitable for installation on Castle's Iyonix PC. This follows on from the initial work of the Linux port to Iyonix. Install CDs are sold with one month support. Costs are:

First CD only, allowing a basic system with e-mail support: £28
Full set of 6 CDs: £35
Telephone support: Add £10
See the following pages for more details: **www.chocky.org/linux/**

More information about the current status of the Linux port to Castle's Iyonix is available on their Web site: **www.iyonix.com/linux.html**

To install Linux you will need either a separate drive to install it on, or a way of backing up your existing data to allow repartitioning. For purchasers of new machines, for a small additional cost, CJE Micro's will prepare your drive ready for Linux install to avoid this step. Contact them for more details.

Multi-ARM for wireless networking

Circuit maker Agere Systems has claimed it can offer four times the average processing power on its new single wireless network infrastructure device processor.

The wireless data company, which spun out of Lucent, says it has integrated more ARM processors in a single microchip than any other semiconductor provider.

In a throwback to the Simtec "hydra" multi-processor card for the Risc PC, it has combined eight ARM966E-S processor cores onto an application-specific integrated circuit (ASIC).

Agere designed and verified each ARM core on the 0.16 micron device as a subsystem, which was integrated into the customer's proprietary ASIC architecture.

The ARM core included 52KB of instruction memory, 20KB of data memory and 16KB of dual port memory for data transfer. The AMBA sub-systems included the bridges and memory systems.

"This was new territory, so new system-on-a-chip design flows were developed to complete this design. We also pushed the limits of 0.16 micron process technology," said Necip Sayiner, vice president of Agere's Networking IC business, in a statement.

The ASIC is being shipped to a provider of wireless communications systems for the company's 3G wireless infrastructure equipment.

Aemulor database updated

The Aemulor software compatibility database has been completely refreshed and updated based upon the increased compatibility of the recent 2.2 release.

Many of the applications which failed under the StrongARM emulation engine now work, such as Eureka and Squirrel, and the database has been updated with a new field indicating which emulation engine to use for each application. Go to WWW.AEMULOR.COM

South East Show

The list of confirmed exhibitors for this years Guildford show is now as follows:
Acorn Publisher / Fleur Designs
Acorn User / Tau Press
Archive Publications
APDL / Risc World
ARM Club
Aemulor
Brian Jaques
Castle

Charity Stall
CJE Micros / 4th Dimension
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Fortran Friends
Icon Technology
ITC-UK
NetBSD
MW Software
Paul Vigay + Peter Naulls
Photodesk
RComp
RISCOS Ltd
Surrey & Sussex Acorn User Group
Virtual Acorn

The show is held at the same venue as last year, Guildford Technical College on Saturday 18th October 2003

Show opening times are 10:00am to 4:00pm, and despite a very successful show last year, the organisers have promised further improvements on things which visitors had problems with last year such as car parking.

Tickets are £5 each, available only on the door. Car parking is free.

As usual, the show supports a show theatre. The timetable of which is provisionally as follows:
11:00 Castle Technology
12:00 R-Comp / R-Comp Interactive
13:00 Simtec
14:00 Acorn Publisher
15:00 Castle Technology
This will be the first opportunity to question Castle face-to-face on their acquisition of RISC OS and what plans they have for the future.

Visit the show Web site for all the latest news and information:
www.fillin.co.uk/seshow/

32-bit software news

QuickFiler is a utility which allows you to use many standard shortcut keys in conjunction with the RISC OS Filer windows.

When QuickFiler is running the Filer windows are able to gain the input focus when you click in a directory display, and then respond to the keyboard shortcuts as shown on the Filer's menu, and the window is also scrollable.

It should now work on all versions of RISC OS from 3 to 5 (32-bit) but requires a Risc PC-style !Boot application or later. See **www.avisoft.force9.co.uk** for further details and downloads.

BBC Micro archives online

For those of you with a keen interest in the 8-bit world, the BBC Micro and BBC Emulators mailing list archives are now available online. The BBC Micro mailing list archive is now available online at
http://nelsonit.net/~jon/BBCMicro/

The BBC Emulators mailing list archive is available online at
http://nelsonit.net/~jon/BeebEmul8/
Main Features:

- All messages are presented as web pages.
- All messages are fully linked and threaded, it is possible to navigate all posts and threads very easily.
- All email addresses everywhere in the archive have been reduced **tomyemail@**... to protect privacy and to prevent spam harvests.
- There is a search feature provided by Google to allow almost full searches of the site.
- The BBC Micro archive should have new posts added during the first week of each month as time allows.
- The BBC Emulators list is now defunct and will only be updated as new messages and features become available.

An archive of the info-cpm usenet group is also available at
http://nelsonit.net/~jon/info-cpm/

Clan archives available online

Those who remember the Acorn Clan, the marketing exercise by Acorn Computers to keep their user base informed of current and future developments, and who are after a little nostalgia should visit
www.iconbar.com/archive/clan/

Many of the original clan newsletters, ART/Clan data sheets for ill-fated projects such as the Stork notebook (which your news editor himself worked upon), Newspad tablet, Phoebe and the Galileo Operating System are available for online viewing or download.

User group events

The M25EROUG meeting on 16th September at 7.30pm at Harold Court School, Church Road, Harold Wood, RM3 0SH will have Joe Taylor as their guest to demonstrate the AppBASIC.

AppBasic is a freeware application which provides the easiest way to write standard RISC OS applications for the Desktop. Working applications can be written in high-level BASIC (without the need to manipulate byte arrays). Finished applications are standard and efficient; they require no 'in-house' aids to run. See **www.jettons.co.uk/riscos/toolbox/**

Joe Taylor is a retired lecturer in Mathematics and was a former chairman of the Computing Committee in the School of Mathematics and Physical Sciences. He was a frequent contributor to the (now defunct) RISC OS periodical Archimedes World.

For more details contact Barry Walsh **via www.m25eroug.riscos.org.uk**
BAUG: The oldest established Acorn/RISCOS Group, now in their 22nd year **http://come.to/baug**

August 12th No meeting college closed
August 26th No meeting college closed
September 9th : Programme To be advised
September 23rd : CD-burning on Iyonix

The forthcoming meetings for Blackpool Computer Club are to be held at the Victoria Hotel, Cleveleys, and are as follows: Fri 29 August, Fri 26 September, Fri 31 October, Fri 28 November, Fri 19 December

All meetings for the EAUG in Essex are on the second Tuesday of the respective month and are held at the Great Baddow Village Hall, Essex. For location details and other information see their Web site
www.wattys.fsnet.co.uk/eaug/

9th September "Practical Networking"
14th October "Backing-Up to Hard Disc - Is it sensible?"
The RISC OS User Group of London (ROUGOL) meets on the third Monday evening of every month, at The Blue-Eyed Maid, 173 Borough High Street, London SE1 1HR.

The October meeting is a hands-on networking evening featuring RISC OS and Windows. The November and December meetings will be informal, but there might be some surprises. Admittance and membership are free.

For more information, e-mail
info@rougol.jellybaby.net
or phone 07876 035 495.

The ICENI Computer Club in Ipswich meets on the first Wednesday evening of every month at Bourne Vale Social Club, Halifax Road, Ipswich, IP2 8RE. The October meeting will cover CD burning on Iyonix, Windows PC, and possibly also Risc PC or Lintel systems. "Vector Graphics" is the provisional topic for the November meeting.

Entry to your first meeting is free. For more information, e-mail **iceni@woolridge.org.uk** or phone 01255 503048.

The RISC OS North West User Group continues to meet at the Trafford Metrovick Rugby & Cricket Club, Finnybank Rd, Sale, Cheshire M33 6LR on the third Wednesday evening of each month. Admittance and membership are free. For more information, email **info@ronwug.org** or phone 0161 969 9820.

Southampton Acorn Users Group: Provisional meetings for the rest of 2003 are: September 8th, October 13th, November 10th, December 8th. Topics to be advised nearer the date. See comp.sys.acorn.announce
Rob Andrews is interested in starting a Midlands RISC OS User Group. Anyone interested in joining should email him at **rob@micro-bits.co.uk**

Microsoft faces E.U. fines

The European Commission said that Microsoft is still committing the monopoly abuses that it was first accused of in 1998. The commission said that Microsoft has leveraged its dominance in the market for computer operating systems into the markets for server systems and media-player software.

The Commission wants Microsoft to reveal all the software code that competitors would need in order to make their server systems as compatible with Windows as Microsoft's own server software.

In order to restore competition in the market for audio and video playing software, the European regulator has proposed two solutions: Either Microsoft must stop selling its Media Player as a package with its Windows operating system, or Windows should also be forced to carry a competing product.

The commission also said that it might fine Microsoft up to 10% of its global annual sales for its monopoly offenses. Microsoft will have an opportunity to reply to the finding and to appeal the verdict.

Unlike the U.S. ruling against Microsoft, which looked back at the browser wars, this ruling looks forward at the emerging media-player market, where the war's still on. Despite giving away its media player and incorporating it into the operating system, there are still a few robust players out there. In the browser wars, Netscape never had a plan to make money, while RealMedia is actually selling product, and Apple is making money with its media player.

Even if Microsoft opens its server APIs, it is unlikely that software competitors will believe that Microsoft won't find some other way to keep!the home court advantage. Competitors will look increasingly to Linux as a level playing field where they have a chance to sell their wares. Though, with open-source software dominating the Linux platform, the only place to make money on that platform may be in consulting.

Wireless stream approved

The IEEE, an industry standards group, has completed a new wireless networking standard that will lay the groundwork for a new generation of digital entertainment products. The 802.15.3 standard will ensure that digital content streamed over a wireless network will have a guaranteed level of service.

The standard allows data to be transmitted at 55Mbps for 100 yards and operates in the 2.4GHz frequency band. Networks using 802.15.3 also will be able to switch channels automatically if interference is detected from cordless phones or other networks. The network was designed to coexist with other wireless technologies, such as Bluetooth and Wi-Fi (802.11a).

IBM lab port to PlayStation

IBM has ported its AS/400 enterprise operating system to Sony's PlayStation games console. The project is an outcome of IBM's joint development project with Toshiba and Sony to develop processors for entertainment and other applications.

The processors developed under the deal will be based on IBM's POWER architecture, which is also used in the iSeries machines that run OS/400, the AS/400's operating system. There are no plans for commercialisation. Sounds to me like some bored IBM techies fancied a break from Tomb Raider!

Robot walks on water

MIT scientists have solved the mystery of how some insects can walk on water and constructed a lightweight robot that performs the same feat. Using high-speed photography and the mathematical principles of mechanical engineering, researchers found that the tips of an insect's legs generate invisible U-shaped vortices under the water.

These propel the insect forward as each vortex moves backwards. The robot water strider is made of stainless steel wire coated in a water-repellent and powered by an elastic band!

MP3 coin

Two Korean firms have unveiled a featherweight MP3 player that's so small it could easily be mistaken for a silver coin. EMP-Z measures 42 mm in diameter, is 10 mm thick, and weighs 15 grams. It comes with 128 MB of non-expandable memory. The device combines the earphone and USB (Universal Serial Bus) slots into a one. Users can transfer songs from their computer's USB slot to the EMP-Z through its standard headphone jack. The device will cost around $120 and enter mass production later this month.

Say "cheese" to fridge cam

Electrolux is developing a system that will let people use their mobile phones to see inside their refrigerators. The Food Manager consists primarily of an Internet-connected digital camera that will take a series of photographs of the inside of a refrigerator each time the appliance's door is closed.

The pictures are then uploaded to a server, where users can access them over any Web-connected computer or a WAP-enabled mobile phone. An open engineering challenge: how to see everything when the refrigerator is full.

Getting into print

Or, "Oh no, not another newsletter design article!" because let's face it, you do see quite a few articles on newsletter design in computer magazines. I think it's that of all design projects, a newsletter is most likely to concern the average person. A photocopied small run issue about your favourite hobby or passion, or a properly printed corporate mini-newspaper: more people will be involved in such projects than, say, designing a company logo.



With so much having been written on the subject, what do I have to add? My aim is perhaps to suggest things to think about, and explore my "take" on the visual aspect of a newsletter. I'm going to start by looking at the title area; what I call the masthead. Other names for this important element of newsletter design are "flag", "banner", "nameplate", even "logo". Whatever you call it, if you can design an attractive and professional masthead it strengthens the look of the whole newsletter.

Let's imagine the Bloggs Plumbing Company have expanded and think it's a good idea for a newsletter for company employees round the country to be kept informed and feel part of the business. You have been asked to produce the newsletter and there are certain questions you need to ask. What is the image of the company? Are they after something formal and conservative, or cutting-edge and exciting? Often a good clue is to look at the existing design: the company logo, stationery, and so on.

You've come up with a name, The Plumb Line, and there are certain elements which should be included in the nameplate: the title, obviously, the name of the organisation producing the newsletter, the date of the issue, and I suggest you have a device separating the masthead from the main text of the publication. This way the masthead will become recognised, while the editorial area will change every issue. A line, a box or a tint would suffice. In addition, you could include the company logo, and the issue number (for example, Vol.2, No.6).



The NUT
The NUT
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The NUT
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THE NUT
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The NUT
The NUT

My first attempt echoes the Bloggs Plumbers logo: the same font, the same colour, and the same graphic "water drip" device. I've separated the two parts of the title ("plumb" and "line") to make the pun more obvious, and I've added a couple of graphic twists to make it stand out a little more: the "The" (always a troublesome word to fit in, I find) I have rotated, so that the baseline follows the diagonal line of the italic font, and I've cut out part of the first "L" to fit it snugly against the "U", and to introduce a tiny bit of interest to make you look twice.

I've used a double tramline as the graphic device to separate the title from the main body of text, and between the lines I have added the dateline, the issue number and, something which has become more and more relevant these days, a Web site address.

If the newsletter isn't corporate, and has no existing design to borrow from, a good place to start is with the font. Write the name of the title in any application (Draw, Impression, Artworks, Ovation Pro, whatever) and keep changing the font. In this example we'll design the masthead for a fictitious Acorn Users group. One of the results might capture your imagination, and just feel "right" for the publication.

Make sure the font relates to the image you want to project, and is readable. Although the title font can certainly be more decorative than the main body text, you don't want it to be so fancy that people have to work to read it. You have to make people interested to read the material, and if it requires effort from the masthead on, your job is that much harder.

Once you've chosen the typeface, let's see what we can do to make "The NUT" a little more attractive. I liked the Typewriter font, but I decided to render "The" in a more delicate face in contrast to the bold letters of "NUT". I then added the Acorn graphic, which would be instantly recognised by most RISC OS users. I've made the name of the organisation "The London Acorn Users Consortium" quite prominent, and the dateline and issue number tucked in below. This time the graphic device to separate the title from the main body of text is a tint of the main colour. You could box the whole lot in, and that's often done, but I think it looks amateurish and it constricts the design. A tint serves the same purpose but it has an open feel and allows the design to breathe.

Next time we'll look at the overall design of your newsletter, and explore ways of drawing people in to reading it.



Nigel Gatherer
augraphics@acornuser.com

Iyonix applications

So you get your Iyonix PC home, and what are you going to do with it? If you are lucky with space and resources you might network it to your existing RISC OS computer, that at least lets you transfer files over ... oh but wait a minute, the Iyonix doesn't have the applications that you've been using for the last X years.

There's no Photodesk, no Ovation Pro, no Artworks, no TechWriter and certainly no Impression. So what are you going to do now? In this short series we are going to look at the applications you can get, how they've changed, how much faster they are now and we may even bring back the speed benchmarks. Cool.

Have you got your Iyonix connected to the Internet? Or at least one of your computers? First of all you can download Ovation Pro (**http://pilling.users.netlink.co.uk**) 2.60 along with the upgrades to 6.72, even if you only download the demo version.

You can also download a demo version of Aemulor, you are going to need it if you use any applications that may never be converted to 32-bit (like Impression). You can get that from www.aemulor.com.

In my case the Iyonix is hanging off a network and doesn't have direct access to the Internet. When my exchange gets converted for ADSL the first thing I'm going to do is get an ADSL router and get them all connected. But not yet.

So I got upgrades for Techwriter (ordered from Icon Technology), Artworks 2 (from MWSoftware) and Photodesk (from Photodesk) then downloaded Ovation Pro and Aemulor. I also dug out my Impression installation discs from 1997.

When you contact MW Software you will be needing your original Artworks documentation because its real serial number (not the one you get on screen when it launches) is in there and Martin Wuerthner needs to be able to prepare your very own CD.

Aemulor

This is an astonishing piece of software, a brilliant piece of work in my opinion but there is a liability with Aemulor which does affect the 32-bit side of the machine: In order to prevent certain problems Aemulor prevents RISC OS 5 from allocating more than 28Mb for any application. So although Photodesk might be able to load 80Mb image files (or more) under RISC OS 5, it won't be able to if you have Aemulor running.

With Aemulor you have the choice of running it whenever you need to run a 26-bit application, or having it run on boot-up. The problem mentioned above will affect every application if you run from boot-up. Personally I prefer to run it when I need it. You'll have to make your own choices about this.

The primary reason for running Aemulor, in my opinion, is so that you can have Impression. Is it time to convert to Ovation Pro? The latest version of Ovation Pro does have its Impression loader module and it is pretty comprehensive. But on the other hand it can be hard changing from a piece of software that you've been using continually for 10 years, especially one that is as easy to use as Impression. Still, Ovation Pro is a much more capable piece of software and it does work in 32-bit mode without the need for Aemulor.

Downloading Aemulor, which is worth doing anyway for testing purposes, is fairly straightforward and requires the navigation of quite a few screens. It does show you, as well, just how a piece of software can be made available via the Web and be completely copy protected. Even the demo version will only work on your Iyonix, and it's time limited. Although you can download a couple of copies.

Although it appears as just a single module (and a fairly small one at that) Aemulor provides an iconbar icon and appears automatically in the Apps directory. It is recommended that Aemulor is launched from PreBoot so that all 26-bit applications come under its effect but with the other restrictions I would never do that.

Aemulor is capable of recognising 26-bit applications but you can help it along by telling it specifically which applications it should be putting through the emulator. You do this by simply dragging the application on to the Aemulor icon and confirming that this application should be treated as 26-bit. You can also tell it whether you want it to use the ARM610 or the StrongARM emulator.

As a little sideline the StrongARM emulator can automatically patch some older ARM610 software so that it will work with the SA emulator and benefit from a speed increase under emulation. It can take a bit to get your head around these things.

www.aemulor.com

Impression

I am going to look at getting Impression running as part of the Aemulor section because they are completely tied together. I imagine there are some of you who haven't got Impression so this is probably only of academic interest but it does demonstrate what Aemulor can do.

Having found your Impression installation discs you can pop the first one in the drive and and click up the Filer window on to the screen. If you try double-clicking the Install application it will fail, of course, because it uses some 26-bit modules.

So run up Aemulor and drop the Install application into the Application Options window, highlight it by clicking on it and then click the Run button. And away it goes. It was quite eerie going through the installation process knowing that, by rights, the program shouldn't be running at all.

When the installation came to a finish, there was Impression Pro sitting comfortably in an Iyonix Filer window. I tried double-clicking it, it failed.

So I went back to the Iyonix, dragged the Impression Filer icon on to the Aemulor iconbar icon and performed a few set-ups like switching it to the StrongARM emulator and, since Publisher Plus does use a dynamic area, setting the Dynamic Areas to "low" memory addresses just to be on the safe side.

In terms of typing speed I thought perhaps the Impression/Aemulor was a little bit slower. It didn't have quite the "snap" of a real StrongARM Risc PC when reformatting a paragraph. But it isn't slow.

There are some difficulties I have yet to iron out with regard to Artworks rendering. Obviously the version I'm using is the one installed from 1997. There have been improvements in versions since then by MW Software. However when I tried to persuade it to use the 32-bit renderer it didn't work so there's still some thinking to be done there.

Ovation Pro

Installing Ovation Pro is very easy, just drag it out of the archive and on to your hard disk and then copy the RegData file from your original version to the download and Bob's your uncle. You have a working Ovation Pro package. I like it when it's that easy.

There is not a huge amount to say about Ovation Pro except that it is still being updated and bug-fixed by David Pilling so version 2.72 is dated 31st July 2003. The new version does come with an Impression conversion module which I tested first on this file, yes we write the Acorn User articles on Impression as you can see from the Impression pictures above (old habits die hard). We could use Ovation Pro but we would need someone to write an OvPro script that outputs Quark XPress compatible text with styles.

This is a basically simple file which doesn't require much converting (although I realise that Impression has an extremely complex file format). Of the two files I tried the second didn't do too well with text-embedded frames containing text. But there are better ways of achieving the same effect in Ovation Pro.

For a short while we did use Ovation Pro to actually produce the whole magazine but that was when we had a Acorn-savvy layout person. Mac people don't like changing (but then who does). As a matter of interest Ovation Pro is very definitely suitable for professional layout. And its Postscript output is vastly better than can be achieved via Impression Pro and the standard Acorn print drivers.

I should perhaps say that the speed of conversion from Impression to Ovation Pro seemed instantaneous. Blink and you miss it. As did the load speed of the application, obviously a bigger file with lots of pictures will take longer, but the Iyonix really is a quick machine.

TechWriter

This particular application has been 32-bit compatible almost longer than there has been a 32-bit version of RISC OS. Simply because a Word-compatible piece of software was needed by Pace and Icon Technology were able to deliver the goods.

Now I have, for the past few years, off and on, been writing a novel. I've been doing it in Techwriter and not in Impression simply because I wanted a word processor and not a document processor.

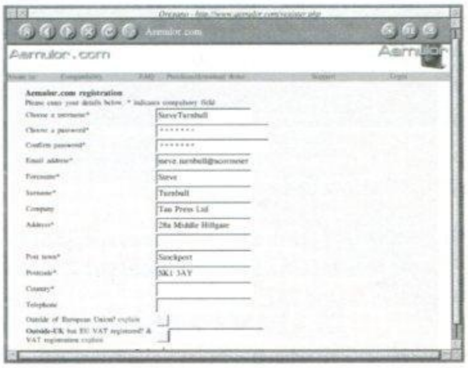
However recently, as my word count reached into the 60,000 range (and is now at over 100,000) I began to run into problems using my TechWriter/Risc PC combination. Loading is always quite fast, but saving has become a bit of a drag on my Risc PC. It takes a very long time. So I thought I would do a couple of speed tests between what is essentially the same piece of software, and the same file, but between a Risc PC SA233 and an Iyonix. The first was loading the document from a double-click without TechWriter loaded. So it loads Techwriter and then the document.

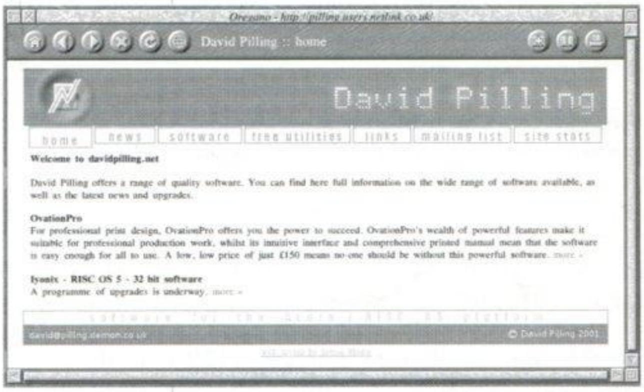
Machine	Risc PC SA233	Iyonix PC	Factor
Load	11sec	1.5sec	x7
Save	30sec	4sec	x7.5

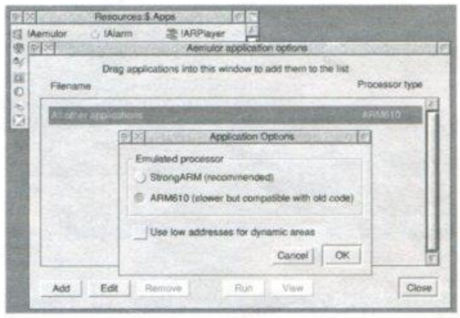
So, for a loading and saving intensive application, you have a x7 factor roughly. And it has to be said that the latest version of TechWriter works just as beautifully and as smoothly (well perhaps more smoothly) than the 26-bit version. Having done that I thought I would look at a different activity: spelling is processor/memory access intensive instead of hard disc intensive. The speed on this, to check 100,885 words, is:

Machine	Risc PC SA233	Iyonix PC	Factor
Load	12sec	4sec	x3

Which is interesting since the processor











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speed is theoretically about 2.5 times faster in the Risc PC, the increased memory bandwidth does seem to make a difference. Think about it this way: An Iyonix is an upgrade that runs a certain piece of software three times faster than it did before and saves me 26 seconds every time I save to disc. I like it, and I like TechWriter.

Artworks

I have given a little look at the Artworks installation process which is now very simple. With Artworks 2 you get all the extra tools that Martin Wuerthner has put together for Artworks over the years. Nigel Gatherer has given a short overview from the artist's viewpoint.

I thought I'd take a look from the ordinary users side, with a look at the increased speed.

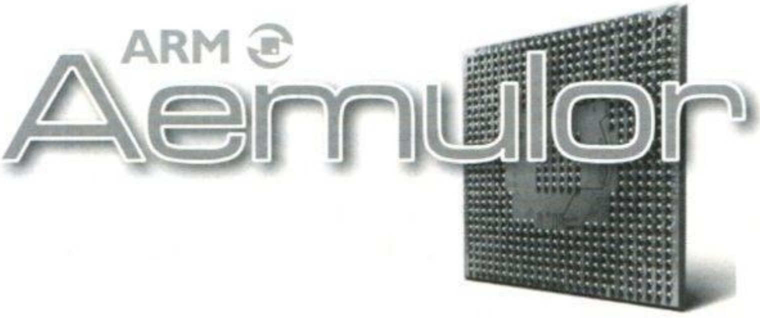
Once upon a time I had a map drawn in Artworks. it was the biggest "paper" size Artworks could manage and covered a huge area when printed out. I did want to test this on the 32-bit version but unfortunately it couldn't be found.

Instead we have gone back to the old favourites, specifically the Artworks apple and the mini, both of which were incredible when they were first seen all those years ago. Doing time trials on Artworks isn't the easiest thing in the world since another novelty with the renderer, when it was first released, was the fact that it multitasks.

This does mean that some of the increase in speed you will see here is also down to changes in the operating system architecture. However, when it comes down to it, it is overall speed increase we are really interested in.

Machine	Risc PC SA233	Iyonix PC	Factor
Load AW	24s/14s	2s/2s	x12/x7
Render apple	4s	3s	x1.3
Render mini	3s	2s	x1.5
Crystal glow	3s	8s	x2.6

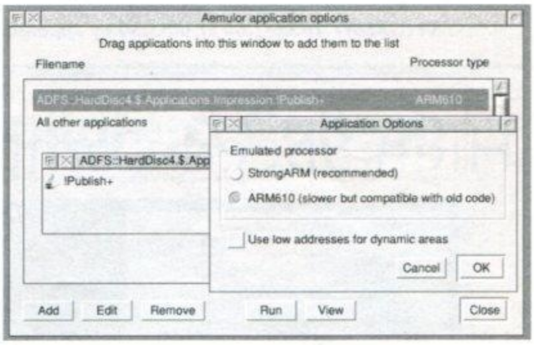
Just a quick explanation there are two values for loading Artworks, the first is loading it for the first time and the second is having quit it, and then launching it again. As you can see the second time gives the standard x7 speed increase when it comes to loading and saving. The first value also includes loading other modules that Artworks uses.





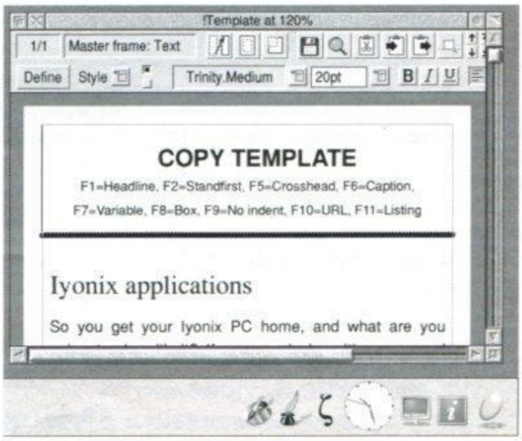


There have been reports of speed increases of a factor of five on Artworks redraw, well perhaps it does, my tests have been fairly arbitrary and perhaps it depends on what facilities you are using. Using the transparency feature, Crystal, does make more of a difference but the fact is that Artworks always was an excellent product and it is faster on the Iyonix.



Future stops

Next month we will take a look at Photodesk, Oregano2 and the spreadsheet situation with 32-bit, plus we will do some completely arbitrary benchmark tests to see what happens, in fact we have already done some of these and the results are interesting (for example it is counter-productive using lower resolution modes on the Iyonix).



Summing up what we find is that DTP is well served on the Iyonix, as are the two main graphics areas. But there is more to computer usage than DTP and graphics even if those are primary areas.

We shall see.

Steve Turnbull
steve.turnbull@acornuser.com

ECDL in particular

In the last issue of the magazine we pointed out that the ECDL, contrary to the opinions of many RISC OS users (not entirely unjustified in earlier versions of the ECDL) was not a Microsoft-specific qualification that had absolutely nothing to do with RISC OS.

In fact, as time has gone on, there have been strong efforts to ensure that the ECDL is not system-specific. Not every one uses Windows, there is Mac OS and Linux for a start, never mind RISC OS itself.

Of course it is quite hard for someone brought up entirely on Windows to imagine what it might be like using something else but they can learn, and the syllabus for a general understanding of computers, perhaps including the fact that Windows is not the only flavour, is definitely achievable.

The latest version of the ECDL, version 4, takes another step in that direction and although there are times when you can see the influence of Windows in the syllabus it has now reached a stage where it is almost completely neutral in approach.

Of course you do still have the problem that you need to find a testing centre that will be able to test you on RISC OS but that's just another step. It's probably just as hard for Mac users.

This time let's take a run-through some of the modules highlighting the areas and seeing what parts might be difficult for RISC OS. You can download a full version of the syllabus from **www.ecdl.com** in PDF format, which !PDF renders perfectly.

One thing I would say about this is that it is very easy to find fault, it is always easy to find fault. But in a fast moving world like IT you have to start somewhere and the basics are fairly solid.

Concepts of IT

Module 1 covers some of the main concepts of IT at a general level. It deals with what a computer is composed of in terms of hardware and software, and grasping some of the concepts of Information Technology including data storage and memory.

You also need to understand how information networks are used within computing and aware of the uses of computer-based software applications in everyday life. You have to appreciate health and safety issues as well as some environmental factors involved in using computers. You also have to know of some of the important security and legal issues associated with using computers.

On a more specific level you need to be able to distinguish between main-frames, a network computer, personal computers, laptops and PDAs in terms of capacity, speed, cost, and typical users. Also how things like processor speed, memory, number of applications running affect performance.

Of course there is a Windows warning here: Performance is also impacted seriously by the type of operating system you are running and one particular operating system is written in such a way that applications don't generally have their speed affected by the amount RAM.

You also have to know the main parts such as: CPU, hard disk, common input and output devices, types of memory. And you have to know what a peripheral is, mind you that in itself can be contentious but let's move on.

Staying on the hardware side you need to know what the functions of the CPU are (in terms of calculations, logic control, memory access) and what units its speed is measured in. Windows warning applicable here, of course. Processor speed is only comparable when comparing like with like, not between different specie of processor.

You have to know about RAM and the different types, well when they say different types they mean RAM and ROM. You also need to be able to know the different ways of measuring the size of memory, (kB, MB, GB, TB); and what bits and bytes are. (A brief tribute to one of the question-setters in a recent University Challenge who's question asked for the "usual" number of bits in a byte. It is usually 8 but it doesn't have to be...) The syllabus doesn't say whether you are supposed to know that the K unit is 1024 and not 1000, G being 1024x1024 and not 1000x1000 and so on.

You also have to know how these memory measurements relate to characters and files ... and directories, I couldn't quite figure out that last one myself. There is also the complication now of Unicode where each character is now two bytes not one. But we'll pass on.

You have to understand the difference between the types of input device, output device, and storage devices, including some proprietory types like Zip. As well as grasp the concept of formatting a storage device and why you have to do it. It might have been worthwhile covering the fact that there are different formats and some are not compatible.

Then we come on to software in general: You have to know what an operating system is and what it does, how it relates to applications. This is good. You have to know the names of some common operating systems: Excellent, that will help to show that there is more to life than Windows. Unless, of course, the testing centre will allow W95, W98, W2000, WXP as a genuine answer. (Mind you it is a correct answer.)

You have to be able to list some common applications and what they are used for. Windows warning here I think. To be honest it would be better to list the common uses of computers in terms of the type of application: Word processing, spreadsheet, database, Web browsing, DTP, Accounts, image editing, video editing. The names of the applications are irrelevant.

Along with operating systems you need to know what a GUI is, once again this is in isolation. It would be worth having something to compare it with, what came before GUIs? What might come next?

The next part is very interesting: You have to know about system development and how the development process works from analysis to implementation.

Then we move on to networks, you have to know what the different size abbreviations are and what they mean, well LAN and WAN anyway. And also the client/server relationship. Then you need to explain why networks are a good thing with things like file and application sharing, printer sharing and so on.

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Then you've got to go into Intranets and Extranets and what is the difference between those and the Internet. Ouch. I have to admit that, for a beginner this can be pretty tough, but it demonstrates that the ECDL is not some Windows-only nonsense. It's a real test.

Then we come to the Internet itself, what it is and (joy-joy) what is the difference between the Internet and the Worldwide Web. There are so many people (well, TV presenters and reporters mostly) that I would love to force to study that and learn what it is. What I don't quite get is why they didn't include other services that use the Internet, like e-mail, at this point.

Very interestingly the syllabus then switches to the telephone system and how it relates to computing you have to understand things like: Public Computing Switched Telephone Network (PSTN), Integrated Services Digital Network (ISDN) and Asymmetric Digital Subscriber Line (ADSL). Along with the terms analogue, digital, modem, and transfer rate, (measured in bps - bits per second).

We're still in Module 1 here and now you turn your attention to how IT gets used in various areas, starting with the workplace. Looking at the places where using a computer is more appropriate than using a person as in large-scale computer applications in business such as: business administration systems, airline booking systems, insurance claims processing, online banking.

You have to have a good idea of other large-scale uses for IT in government (a very healthy thing to examine) like public records systems (census, vehicle registration), revenue collection and electronic voting. In hospitals/healthcare such as: patient records systems, ambulance control systems, diagnostic tools and instruments, specialist surgical equipment. In education such as: student registration and timetabling systems, computer-based training (CBT), distance learning, and homework using the Internet.

You are asked to look at teleworking including the advantages and the disadvantages.
Surprisingly e-mail gets just one tiny section: know what it means and its main uses. And this in the business section. It definitely belongs up with the Web section and the Internet, well in my opinion anyway.

We have done a lot of looking at e-commerce over the past year in Acorn User and the ECDL gives it its own section under business. Though only from the buyer's viewpoint. You have to understand what it is and how it works, the liabilities and your rights, however it doesn't appear to discuss buying online from another country and the risks involved with that.

You are asked to look at both the advantages and disadvantages of using online services which will help to make you aware of what is good and what is bad. Such as: services available 24 hours a day, opportunity to view a wide range of products. As opposed to no human contact and risk of insecure payment methods.

Then the syllabus moves on to health issues such as the correct positioning of monitors, keyboards, adjustable chairs and mice. Why, if any reason, use a monitor filter (do people still use those?); and the use of proper lighting and ventilation plus having regular breaks away from the computer, if you use it continuously.

You have to look at the most common health problems associated with computer use like injuries to the wrist from prolonged typing, eye strain caused by screen glare, back problems associated with poor seating or bad posture.

You also have to know about standard safety precautions like ensuring power cables are safely secured and power points are not overloaded.

Environment is always an issue so you also need to know that standard recycling of printed outputs, printer toner cartridges, and using a monitor that consumes less power while the computer is inactive can help the environment.

What about a monitor that consumes less power at any time? Also no mention here that using a computer that consumes less power might be a good plan as well. I feel I might detect the hand of vested interests here ... or possibly the impossible idea that a computer might take less power.

There's a teeny teeny paragraph on using electronic documents instead of paper ones. The paper-less office anybody? I wish.

Another important issue that any one should have a basic grounding in is security and this is covered in reasonable depth here.

In fact this is pretty much a no-holds-barred approach, take a read of this:

Understand the term information security and the benefits to an organisation of being proactive in dealing with security risks such as: adopting an information security policy with respect to handling sensitive data, having procedures for reporting security incidents, making staff members aware of their responsibilities with respect to information security.

And then:

Know about privacy issues associated with computers, such as adopting good password policies. Understand what is meant by user ID and differentiate between user ID and password. Understand the term access rights and know why access rights are important.

Good password policies? That would be a great thing. Can you imagine a world where people actually think up real passwords and don't leave them stuck to their computer monitors with sticky tape? I have a policy on passwords which let's me choose good original ones that would be hard to work out and make it easy for me to remember without writing them down, and I'm not telling you what it is! Figure your own out.

We then get on to that dreary subject of backups, who does backups? Well Tau Press does for a start. And what about getting your mobile phone, laptop or PDA nicked? What are the implications of with possible misuse of confidential files, loss of files, loss of important contact details if not available on a separate source, possible misuse of telephone numbers.

(Which reminds me, if you are forced to use Outlook on a PC, go to Plaxo.com, they've got a great system which will store your contact details on their Web site. Secure from other users but you can access it from any Web-connected computer. It does lots of other clever things as well. End of advert. Oh yes, and it's free.)

Now we come to that sticky subject of viruses, obviously one of extreme importance to any PC user but less so to anyone else. However you should know about it. So the ECDL wants you to be able to answer questions on what a computer virus is, and the different types. Plus knowing how you can get infected.

You need to know about anti-virus measures and what to do when you get one. Answers will vary depending on the operating system you use.

This section definitely gets a Windows warning but you never know when you might have to use one and it is worth knowing the level of fear that most PC users live under.

You have to know the limitations of anti-virus software and understand what "disinfecting" files means. You need to know good practice when downloading files, accessing file attachments, such as: use of virus scanning software, not opening unrecognised e-mail messages, not opening attachments contained within unrecognised e-mail messages.

Finally in Module 1 you get on to copyright, what it is and how it applies to software and files including how it relates to the downloading of files from the Internet. There are some people in the world with a level of ethical behaviour that makes them persist in believing that if it's on the Web then it belongs to anyone. That kind of attitude is just criminal, there's no difference between that and going into someone's house to steal their money.

But even this section contains a Windows warning about checking a Product ID? Weird. Understanding the difference between shareware, freeware and a licence agreement is definitely a good thing.

This section also covers Data Protection so you have to know about data protection legislation in your country. and understand the implications of data protection legislation for data subjects and data holders.

And that's all there is to Module 1. Quite an impressive area of coverage and, as you can see, not too Windows-biased. So let's move on to Module 2.

Using the Computer and Managing Files

This module requires the you to demonstrate knowledge and competence in using a computer and its operating system. Before we get into the nitty-gritty of this one you can see that it already looks seriously Windows-biased.

In fact Windows is, in many places, in direct opposition to the goals of this module. Every new incarnation of Windows actually reduces the control the user has over his files and where they get put in the system. Just like electronic devices have "No user serviceable parts inside" Windows is going that way.

Okay the module starts easily: Start the computer up, shut it down and restart it. Then we have a potential Windows warning where you have to "Shut down a non-responding application" but then again we do have Alt+Break if we need it ... which we seldom do.

View the computer's basic system information (F12, *status for the quick and dirty method). Find out what OS it's got (F12, *FX0) and the amount of RAM, (Task Display).

Then you need to be able to change various things like date and time, volume, display options (colour , resolution, screen saver options, Windows Warning? Nope, we have the "blank delay").

Then you need to be able to change the keyboard language (why?) and format a disk or a Zip disk. You have to be able to install a piece of software and then uninstall it (drag it on, Shift-drag it off into a null: directory window, that'll impress them).

Save the screen and paste it into a document. To my mind this seems a ludicrous option, apart from the fact that this is hardly a basic skill, you haven't yet established whether they can create a document to paste something in to. Definitely a silly one. (F12, *screensave $.x, then drag and drop.) You also need to demonstrate that you can use the help facilities.

Launch a text editor, create a file, save it to disk, close the application. For some reason this one is before the section on working with icons, which comes next ... except, of course, on Windows you could do all that without seeing an icon.

You have to be able to recognise common desktop icons for files, directories/folders, applications, printers, recycle bin/wastebasket (whoops, not common on RISC OS but we have our own sets of these).

You also need to know how to move the desktop icons around, which on the whole we don't when they are on the iconbar. However we can move some around on the pinboard.

The next bit is easy: Open a file, directory/folder, application from the desktop. But then "Create a desktop shortcut icon, desktop menu alias." Oh dear, we don't have any of those. At least, not as standard.

Let's move on, you have to know all the different parts of a window though there's a Windows Warning again on the "menu bar". You need to be able to change a window: move, resize, expand, collapse, it doesn't mention iconise because that's what collapse means on Windows but it's not what we mean. And you have to be able to close the window.

And finally in this bit, very very Windows: "Switch between open windows." By which it means click on a window to bring it to the front so that you can edit the contents. Of course, in RISC OS we don't need to bring a window to the front to edit it, but we can if we want to.

Well we have run out of space for this month, so next month we will continue our look at the ECDL syllabus and how it works with RISC OS.

The European Computer Driving Licence Foundation Ltd,
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New balls please

WebJames, as mentioned in a previous issue, is a great piece of software. It allows you to serve up Web pages via RISC OS. Either as pure HTML or using scripting languages like PHP, Perl and BBC BASIC. I had not really intended to say anything more about it because it's either something you want or not. If you are developing Web sites on RISC OS machine then I recommend getting it.

After my long series on writing S-Base applications I wasn't really intending to write anything further on that subject either. I've done my bit, it's a great database system if you like getting down into the nitty-gritty of programming. Very versatile indeed.

But I had been having a little problem. For a long time now there had been a Web-based application that I had been wanting to write and you'll excuse me if I don't say what it is, it is intended to be a commercial product and I can now actually do it.

But the problem was this: I needed to be able to interface Web pages to a database application. I'm a database man at heart, and always have been from my days with COBOL at university. But I am also a RISC OS man and if I was going to develop this application I was going to do it on RISC OS. If RISC OS is good for only one thing in programming: it is fast prototyping of applications.

So I wanted to fast prototype my application demonstrate it will work, get some funding (maybe) and turn it into a practical Web product.

Well I was stymied: most Web-based systems use a scripting language (like PHP) with an SQL variant database system, usually mySQL. I didn't know much about SQL but what I did know was that there isn't an implementation of it for RISC OS.

There were ways around the problem, the first step was that I could use BASIC scripts initially instead of PHP. This meant that I could interface with RISC OS from WebJames (which you can't from PHP), that was the first step. But I felt I was going to have to write a simple database system from scratch and create a library of routines to access it that I could base on SQL so that the commercial version could just have the Basic translated to PHP and the database library converted to SQL accesses.

But I didn't like it, reinventing the wheel is not my idea of fun, no matter how much I like playing with databases.

Then I had an epiphany. Could I interface my WebJames BASIC scripts to S-Base? I had a think and I realised that I could. The scripts can be made to multitask (they become multi-tasking applications in RISC OS) and I could use standard message-passing between applications to get them to talk.

The script could send a message either requesting information or delivering it and S-Base could act on the instructions that it received.

As soon as I started I realised that this was going to work, what a relief. I prepared some basic routines and got the communication flowing between the two applications. the whole thing was working very nicely indeed.

I got up to a simple log-in routine that would allow a person to log-in using a name and the correct password. And a special security method in place, I'll explain.

I have an Egg account, I noticed that the Egg Web site is set up so that once you log-in if you leave your machine unattended for a while it automatically logs you out. I wondered how that was done, then it dawned on me: When a person logs in, they are set up with a "session" and the session has an ID which is passed around as a parameter each time you go to a new Web page.

Each session has a time-out limit such that if you don't do something for a while the session times-out and it won't let you do anything any more. You have to log-in again. But that's only half the story, there is still a Web page sitting on screen that some naughty person could come along and look at.

Automatic redirection comes into play at this point, there is an HTML meta-tag that looks like this:

```
META HTTP-EQUIV="REFRESH"
CONTENT="[%1];
URL=http://dev.statistics.biz/[%2]"
```

This is the command that is used on all those pages you've seen which say "click this if your web browser doesn't automatically go to the new page" or something like that.

I developed a little system in BASIC that allows me to import a file and replace certain parts with parameters, in this case [%1] is the number of seconds wait before redirection (normally this would be zero in a fast redirecting page); and [%2] is the page to redirect to.

What I do is place the time-out time for the system into every page and if no one touches the page when it times out it automatically goes to the log-out page.

Anyway back to communication between applications.

Now my commercial application is an ongoing project but a very practical project turned up at the Tau Press offices that I realised would help very much in developing my commercial package by giving me practice with a simpler but real world application.

Currently all Acorn User subscriptions are held in an S-Base application that I wrote a few years ago. Naturally it only works on RISC OS and whatever staff member has been looking after the subscriptions has to go to the Studio (the Risc PC looks after RISC OS adverts and some of the scanning) to look anything up or to make any changes.

Obviously the thing to do was to take my WebJames server and my S-Base Web server routines and fit them on to the subscription package so that when someone rings in with a query on their subscription the staff member can just access the database from their PC across the office Intranet. So I did.

The nitty-gritty

Wimp messages are the fundamental method of Wimp applications communicating with each other. They are getting sent around all the time, for example when applications start-up and closedown or you change the screen colours or resolution. They are also the system by which windows are told to re-size or be redrawn.

One of the disadvantages of the Wimp messages, particularly when you want to reply to one, is that they can't have any Wimp polling in between, the response has to be immediate. The old Computer Concepts Impulse module, still used today by many applications, was designed to get around this problem. However it's not standard and we don't need to worry about it.

All messages to our database will be initiated by the Basic script but in order to send a message to an application you need to know its task handle (or the handle of one of its windows). You could send out a broadcast message saying "will the database please give me its task handle" but this is inefficient because you'd have to do it every time. Instead we get the S-Base application to put its task handle into a System variable which can then be read by the script. If there's no variable it means the application isn't running so we can report that as an error instead.

S-Base has no method of automatically providing its task handle. Instead we have to resort to a Wimp trick of getting the S-Base application to send a Wimp acknowledgement to one of its own windows. On its return the message contains the task handle.

To make matters worse we can only do this after S-Base has registered itself as multitasking, and (again) there is no automatic way of doing this. So we have to resort to another trick of using a "raw null" handler which is called every time S-Base gets a null polling event. The first time (and only the first time) this happens we check for the task handle. This is all very inelegant but it works.

The sequence of events then is: A BASIC script is activated through a Web browser. The script checks that the database is running, finds out that it has no parameters and so builds a Web page containing just a form which asks for the information to be entered.

The user sees the Web page as delivered by WebJames and fills in (say) the postcode of the person who is querying their subscription. When the search button is clicked the same BASIC script is run. This time the

```
def proc task_setmytaskhandle
  local th=proc task_getmytaskhandle
  oscli("Set subscribe$TaskHandle "+@hex(th))
  task_handle=th
enddef

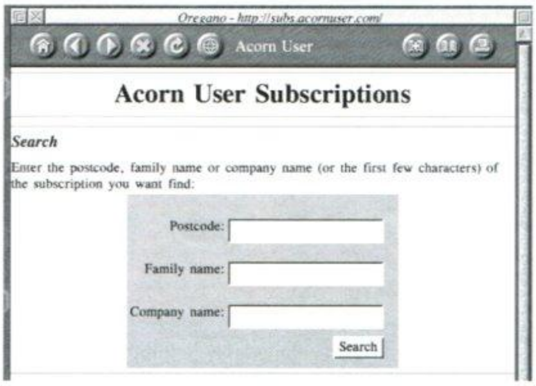
def proc task_getmytaskhandle
   local win_handle, my_handle, buff, my_card

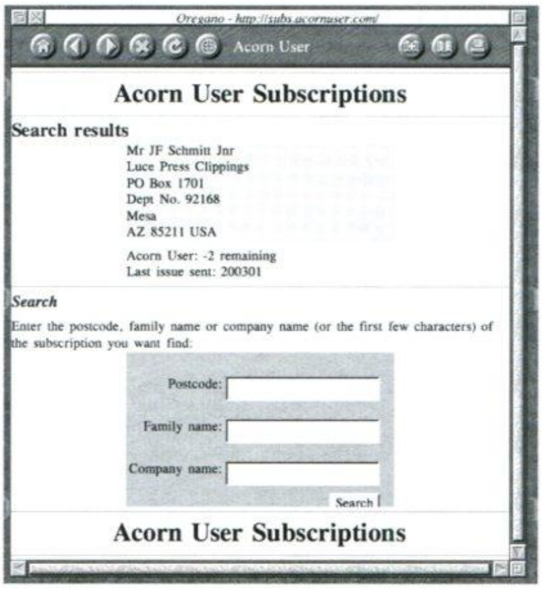
   card new my_card,"infobox"
   card show my_card

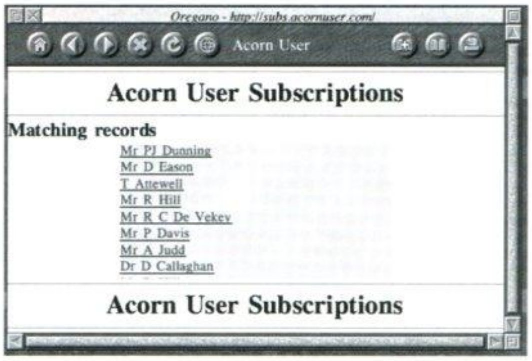
   buffer new static buff, 20
   archive buff, 20, 0, 0, 0, 0  {create a dummy message}
   win_handle = @elementhandle(my_card, -1, 0)
   sys "Wimp_SendMessage", 19, @addr buff, win_handle to ,, my_handle
   buffer dispose buff

   card dispose my_card

   return my_handle
enddef
```







postcode (and the other values) are delivered as parameters to the script.

A trick of the trade here is that I want an "action" parameter to tell the script what needs to be done. I create this by having a hidden input field in the Web page form. This looks like this:

```
INPUT TYPE="HIDDEN" NAME="action"
VALUE="fetch"
```

This is not visible on-screen but passes the "action" parameter with a value of "fetch". I use a value of "search" (or no parameter at all) if I want the page to only contain the input form.

On receiving the fetch command and parameters, the script issues a search command and parameters to the database via the messaging system. The database then does a search and builds one of three different files: If there are no matching values the file just says there were no matches; If there is just one match the database builds an HTML table containing the data needed (the person's name and address, amount remaining in their subscription and the last magazine sent to them)/parameters.

Finally if there is more than one match, it builds an HTML table containing the name of each person matched, with a link back to the same script but this time setting an action value of "fetch" and a parameter of the person's internal database ID.

In this final instance, on screen you get a list of names, when you click one of them the script gets called again this time with only the ID as parameter. This time, of course, there is bound to be only one match (IDs are unique) so you will get the person's subscription details in response.

All that with just one BASIC script.

I haven't gone into huge detail on the coding, I think if you think you want to do that you can probably figure out the details yourself, however I have provided a couple of screenshots so you can see the task handle code and how it looks on screen.

Steve Turnbull
steve.turnbull@acornuser.com

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e-mail: nickb@questdp.co.uk

Voice over 

Voice over IP (VoIP) is a blanket description for any service that delivers standard voice telephone services using the Internet Protocol (IP). Internet protocol is normally used by computers to transfer data and files between computers.

VoIP is considered by some as the next evolutionary step in the digital transmission of voice. Both analogue and digital telephony rely on a fixed transmission path being opened at the start of a call and being kept free of all other traffic for the duration of the call. At the end of the call, the path is closed. This is just like reserving the whole length of a road from A to B when the car at any one time is only occupying a small part of the road on its journey.

VoIP mirrors how roads work in the real world, where only a small section of the road is reserved for a single car. On a crowded road the driver of each car knows where he came from and where he is going. Each car is analogous of a packet of data which has a starting address and a destination address. A red car is travelling from A to B. In front of it is a blue car travelling from C to D and behind it is a green car travelling from E to F. Each car is able to complete its journey without impeding the other cars on the road.

Simple advantages of VoIP

Here are a few simple reasons why a company should consider adopting VoIP technology:

Single network infrastructure: When installing VoIP in the office only a single cable is required to the desk, for both telephone and data. VoIP uses "soft" switching which eliminates most of the legacy, electronic PBX (switchboard) equipment. This reduces costs, of course.

Simple upgrade path: The VoIP PBX technology is software so it is easier to expand, upgrade and maintain than its traditional telephony counterparts.

Bandwidth efficiency: VoIP can compress more voice calls into available bandwidth than legacy telephony. Plus VoIP can offer major cost savings for a company with multiple locations.

How VoIP works

To begin to understand VoIP let us look at very simple VoIP call. Consider two VoIP telephones connected via an IP network. In our example both VoIP telephones are connected to a local LAN. Sally's phone has an IP address of 192.168.1.1 Bill's phone is 192.168.1.2, the IP addresses uniquely identify the telephones. Both are configured to use a widely used VoIP standard called H.323.

Bill wants to talk to Sally and his phone knows the IP address of Sally's phone. Bill lifts the handset and 'dials' Sally, the phone sends a call setup request packet to Sally's phone, Sally's phone starts to ring, and responds to Bill's phone with a call proceeding message. When Sally lifts the handset the phone sends a connect message to Bill's phone.

The two phones will now exchange the data packets containing the speech. I will cover speech encoding later in this article. At the end of the call Bill replaces his handset and phone stops sending voice data sends a disconnect message and Sally's phone responds with a release message. The call is now complete. For anybody familiar with ISDN all the messages contain the Q931 protocol.

VoIP has broadly three main branches that can and do overlap. When people talk about VoIP, they will generally be talking about one of the following.

VoIP over the Internet. This is probably the best known and most publicised, talking PC to PC. Basically free telephone calls. The call is only free if both parties to the call have access to the Internet at zero cost. John wants to talk to Bill, both have Microsoft Netmeeting which is a software product that turns a PC into a VoIP telephone. John calls Bill using Netmeeting and they chat for as long as they want for no cost.

Advantage: free calls regardless of time or distance. Disadvantage: often the voice quality is bad due to the lack of bandwidth. Other factors: Have to use a PC or other computer running VoIP software.

Office to Office. A large multinational company will have offices across Europe. They have a fixed data network connecting all the offices together. This allows every computer access to every other computer in the company. By installing a VoIP Gateway in each office and connecting it to the office legacy PBX and to the data network, employees use the data network for voice calls between offices.

Advantages: Interoffice calls are free, since the company already has the bandwidth between offices. The technology is transparent to the user, and requires minimum training. The only new equipment required is a Gateway at each office. Voice quality is good, because the company has control over the bandwidth. Disadvantage: Extra bandwidth may be required between offices, which offset the savings. Other factors: The carrier providing the interoffice bandwidth will almost certainly offer an alternative solution including management of the internal telephone traffic.

IP PBX. A traditional Private Branch Exchange (PBX) connects all the phones within an organisation to the public telephone network. Essentially IP PBX replaces all the internal phones with VoIP telephones. The IP PBX has standard telephone trunk connections to the public telephone network. The IP PBX is a PBX with VoIP, but it also has the ability to support VoIP over the Internet and Office to Office VoIP. Advantages: Single cable infrastructure. The technology is transparent to the user, and requires minimum training. Future proof technology. Disadvantages: Primarily useful for Greenfield sites, but can be adapted to work with existing technology.

The protocols

I have made an assumption that both ends of a VoIP telephone conversation are compatible. This compatibility only happens if both ends agree to use the same protocol. All manufacturers who claim to be producing industry-standard voice over IP either support SIP or H.323 protocol. HKi Systems concentrates on H.323 although some of the information is also relevant for SIP.

So what is H.323? It is as generic as telling someone that your new car you is a Ford. If you told someone that your car was the red Mondeo in the car park, even if there were a hundred cars, you have supplied sufficient information to pinpoint your car, but the description "Red Mondeo" leaves out all the important things like, size of engine, automatic or manual, leather seats? I use the car analogy only to show that to define VoIP to a usable level we need a lot of information. So let's change analogies and look more deeply at H.323

H.323 is like an onion, it has many layers and as you strip each one off a new one is revealed. Now to take the onion analogy to its extreme, imagine an onion with two cores. H.323 has one core that supports call control and the other core supports the application layer, or bearer path.

Consider a journey by plane, first we need to buy a ticket from one airport to another. The flight availability, cost and whether to fly business or economy are all part of the negotiation of buying an airline ticket. But please note at the end of the negotiation although we have a ticket no travel has taken place.

This is analogous of Call Control under H.323. The Source and Destination of a telephone call and information about the call has to be agreed before the call can take place. So what are these parameters that have to be agreed. Well for a start each end must be running a compatible version of H.323. Normally if a piece of equipment states that it is H.323 compliant it will have a level of functionality capable of completing a call in a H.323 environment.

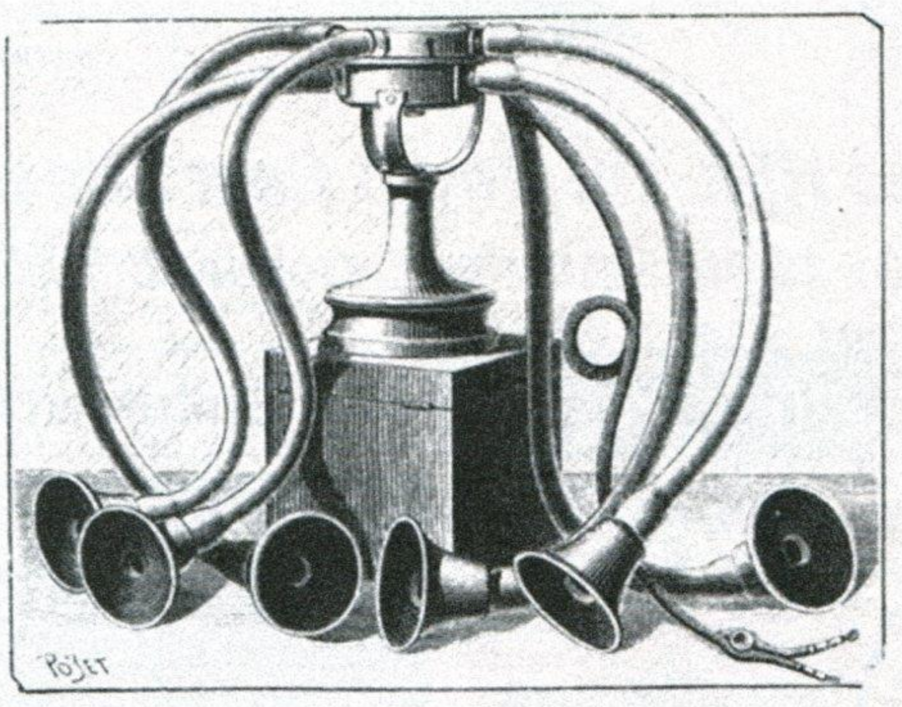
All telephone calls have two ends, the Source address where the call is initiated and the Destination address where the call is terminated. In the PC to PC example we used fixed IP addresses for both source and destination, but these can be very unwieldy and difficult to use. H.323 has a solution to this problem called the Gatekeeper which helps VoIP telephones reach the number they wish to call.

Encoding

The call control part of H.323 sets up the parameters for the full two-way voice path between source telephone and destination telephone. I will continue with my analogies to explain how your voice gets transported across the Internet.

Today many airlines offer ticket-less travel, I arrive at the airport with a reference number, I approach the boarding gate, they take my reference number and they access a computer record that has all the information about my flight, destination, business/economy, special dietary requirements, even the seat I will occupy during the flight. All this is analogous to the call control of H.323: I have to be "encoded" into my seat for travel. The analogies do get a bit strange.

The seat I occupy takes up a certain amount of space on the plane, a first class passenger occupies more space than an economy passenger. A plane with only first class will have less passengers than an economy only plane. So we have a trade off between quality and numbers carried.



In terms of H.323 there is a trade off between call quality and bandwidth, in general the higher the quality the greater the bandwidth required.

During the call setup portion of H.323 the phones have to decide which speech encoder/decoder to use when they send the speech to the other phone, Bill and Sally both have phones that support G.723.1, G.711 and G729. The main difference between each of these encoders is the amount of bandwidth they use, G.711 uses 64kbit/s and G.723.1 can use as little as 5.3kbit/s. Although it would seem obvious to use the encoder with the lowest bandwidth, there is a loss of quality with a lower bandwidth.

Bill's phone requests the use of G.723.1 Sally's phone agrees. The bell on Sally's phone starts to ring. Sally lifts her handset and the phone sends a connect message back to Bill's phone. At the same time a stream of G723.1 encoded voice data starts being sent from each phone to the other phone.

Traditional analogue telephone systems convert sound into a variable voltage, and this continuously varying voltage is transmitted to the far end where it is converted back to sound by the telephone earpiece. Digital telephony (not VoIP) continuously samples the analogue voltage and converts it to a continuous stream of octets at a rate of 8000 a second (64kbit/second).

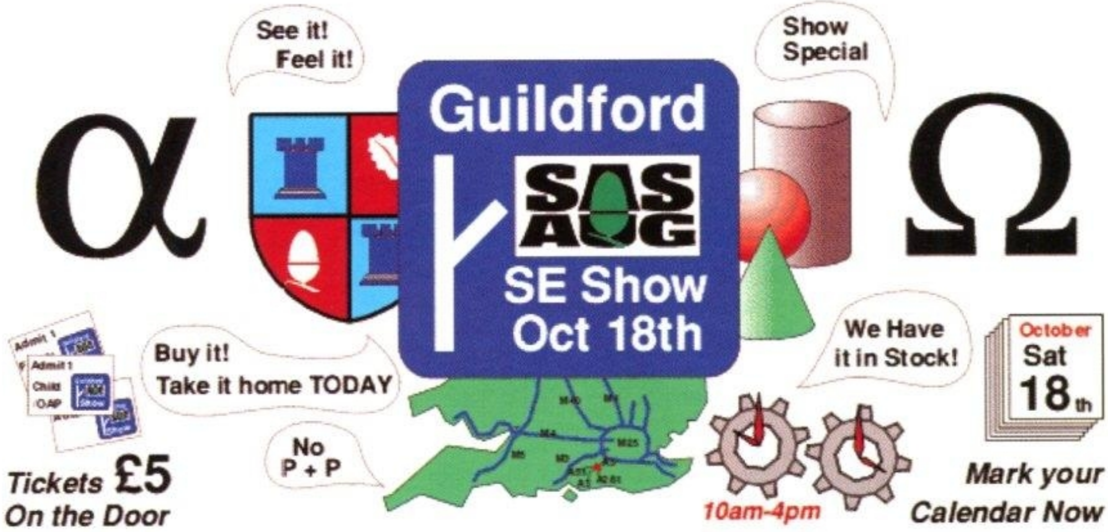
There are two protocols used for this conversion: in North America and Japan μ-Law is used, the rest of the world uses a protocol called A-Law. Digital Telephony requires a fixed path to open from end-to-end capable of synchronously delivering 64kbit/s.

VoIP takes a different approach. Bill speaks into the mouthpiece of his phone. The phone chops Bill's voice into 30 millisecond slices, (remember the

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phones agreed on G.723.1 protocol) each of these slices of sound is converted into a packet of data. This packet is given a number and a time stamp and wrapped in a UDP packet before being dispatched to Sally's phone via the Internet. When Bill is silent listening to Sally's replies, Bill's phone only sends one packet every 180 milliseconds (and the packet is smaller!). Each 30 millisecond of sound has an address header that the Internet uses to route the packet to Sally's phone.

Hear the quality

I have already talked about the encoders in the previous section. I also bundle into the encoding process echo suppression. In the early days of voice calls via satellite there would be an annoying echo. As the technology improved the echo disappeared. Echo suppression is key to good quality VoIP calls.

Be warned that because a manufacturer has a G.723.1 encoder it may not sound the same as another manufacturer who claims to have G.723.1; quality does vary.

As a general rule the occasional lost packet will not affect too drastically the quality of a call, but lose 5 in a row and an entire word is lost and this will be a problem. So if you are going to have lost packets make sure they are only lost in a regular distributed manner. 5% lost packets distributed evenly will not result in the loss of words. Lose 5% of the words by clustering the packets and the effect is bad. But why do packets get lost?

Each packet is making its own way across the Internet and sometimes a packet gets lost due to congestion in the Network. So surely the Internet protects itself from lost packets? Yes, but only when the packets are not time critical data. Speech packets are time critical data. For non-time critical data the receiving end just asks for a lost packet to be present.

To reduce the risk of lost VoIP packets, invest in good quality bandwidth from your ISP.

Latency and jitter

The Internet is full of routers and other electronic stuff, and each packet of data takes a significant time to traverse the Internet. The first packet between two computers on the Internet finds a route and leaves a trace of the path in the routers it traverses, but also each router adds a little delay. The next and subsequent packets use this trace to traverse the Internet.

The cumulative effect of the delays has a direct and indirect affect on speech quality. The direct effect of a VoIP packet taking two second to travel between computers could render normal conversation difficult. Pundits vary on how good the human ear is in detecting delay, less than 150 milliseconds is probably not detectable by the human ear, more than 500 milliseconds may be annoying.

An indirect effect of Latency is to expose the effectiveness of the echo suppression used by the encoders at each end of the speech path. Bill says 'Hello', the word travels to Sally's phone, she hears 'Hello'. If there is any audio coupling between ear piece and microphone the word 'Hello' will be transmitted back to Bill. Bill will hear an echo of his 'Hello'. Good echo suppression will kill the echo. Using a Headset at each end will reduce the level of echo that has to be killed by echo suppression/cancellation.

What is Jitter? We know each packet that travels between two points on the Internet takes a significant time to complete the journey. But not all packets will take the same time to traverse the Internet. If packets are leaving point A regularly at 30 millisecond intervals, when they arrive at point B, the time between packets may no longer be 30 milliseconds.

This variance is known as Jitter. In practice Jitter is a result of the amount of data being handled by the Internet changing from millisecond to millisecond. The routers handling the traffic take longer to route traffic when the data load increases.

However we do not live in a perfect world and Bill's sound packets do not arrive at Sally's phone with the same precise timing they left his phone.

Each of the voice packets from Bill's phone takes a different time to arrive at Sally's phone. The Internet cannot guarantee the time it takes for a packet to travel from Bill to Sally; also packets can get lost. Voice packets must be delivered in order and there is no time to go back and get a lost packet. If Bill and Sally are on the same LAN there will be no lost packets and the packet Jitter will be negligible.

Across the public Internet there will be lost packets. The packets that do arrive, will not arrive at regular 30 millisecond spacing, a packet may arrive only 5 milliseconds after the previous packet and sometimes the delay between packets may be 55 milliseconds or even more, this is Jitter, large amounts of Jitter will make the voice quality unusable.

So how does VoIP cope with Jitter? A VoIP system uses a digital buffer at the receiving end to cope with irregularities of the Internet. This is a buffer that holds each packet just long enough to allow packets to emerge at precisely 30 millisecond intervals and thus taking the irregularity out of the internet transmission path.

So is it worth it? A company may have a number of locations geographically separated and may have both a data network and a voice network linking those companies together. VoIP layers the voice traffic on to the data network reducing the overall cost of the network.

For an individual, at present you might want to use NetMeeting to keep your costs down if quality isn't critical. As usual with technology, the price comes down and the technology becomes more and more commonplace. The point where you jump on depends on what you need.

Roger Cochram

Address: Hki Systems, East India House, 109 - 117 Middlesex Street, London E1 7JF

Web: www.hki-systems.co.uk

E-mail: info@hki-systems.co.uk

Tel: +44 (0) 20 7426 4890

Fax: +44 (0) 20 7454 9440

Digital Video

What was intended to be a simple, relatively short, series on what can be done in RISC OS in order to create and edit digital video has turned into a bit of a marathon of promises because rather a lot of things have been happening in the market.

This article is intended to be a one page re-introduction to the whole area so the first step I think is to re-cap what we have so far.

I'm not going to beat about the bush: the fact is that there is no home video editing software on the RISC OS platform that you can use to do the job.

There used to be Empire, but that is extremely unlikely to be updated as it was tailored around Acorn's Replay format. Nor can you use the professional system Optima from Origin Systems, unless you've got a few thousand pounds to spare (**www.origin-systems.co.uk**) further development of this software is also unlikely, Nic Blinston would like to continue but it's just not viable.

Then there is the, once commercial from Oregan Networks (who do the Oregano browsers) now freeware, Cineworks by Henrik Pedersen (**http://login.dknet.dk/~henrik**). This is no longer supported though I imagine, if someone wanted to pick it up as a project, Henrik would oblige since he did the original WebJames work which has been taken over by Alex Waugh with Henrik's blessing. Oregan would probably also need to be consulted however. I have started to have a look at CineWorks but it's not playing ball with me at the moment.

There is another option, someone decides to take the bull by the horns and invest some energy into writing the product. It's not a small project but analysing the component concepts it is not as complex as something like Ovation Pro, which was written by one person. And if written from a plug-in/driver viewpoint the core code could be designed and written, then the drivers and plug-ins extended or even supplied by other people.

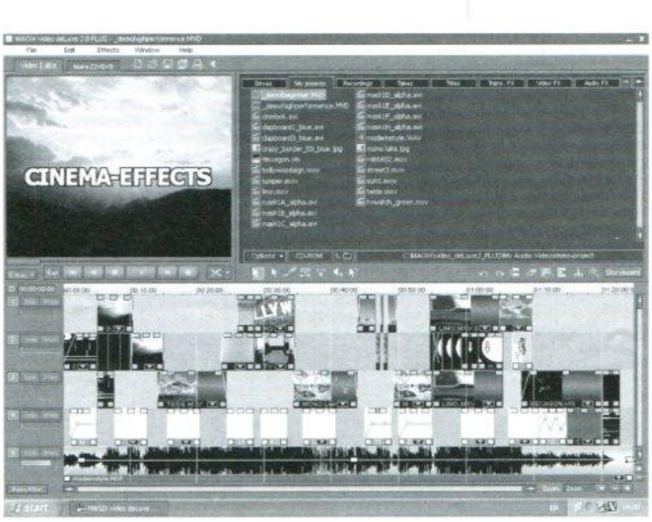
However, all that aside, what we have in terms of RISC OS editing is a big fat zero. So what do you do if you want to edit video?

We know that most Acorn users also own PCs, and our recent coverage of home networks demonstrates how we can link the various machines together. Especially using the option of controlling your PC via VNC using R-Comp's little Remote Control package (**www.rcomp.co.uk**).

You can have the PC sitting in a corner without its own monitor or keyboard, and control its every move with Remote Control. It's a very nice set-up. So let's look at what we can do with a PC via Remote Control. In conjunction with our policy of keeping the PC out of sight we are (once again) using the HKi Systems TX2 (**www.hki-systems.co.uk**) which is dubbed the smallest PC in the world, and is indeed, very small.

Software

The first thing we thought we needed was some editing software so we spoke to some nice people at FastTrak who supplied us with the Magix Video Deluxe 2.0 Plus. It comes with three CDs and needs 500Mb to install, the first disc contains the application itself while the other two CDs video and audio clips and effects. Video files are, however, very big indeed although I don't quite see why the software has to be so big.



Anyway the key point was that we wanted something relatively inexpensive with plenty of options for input and output. One format that this software won't handle is DV (Digital Video itself) the reason being that DV is a proprietory format from Sony and you have to pay them a huge wodge of dosh to be allowed to use it. If anybody does produce a video editing package for RISC OS it is unlikely it will be able to import DV so we need another way of getting video into the machine.

Hardware

Most camcorders also allow S-VHS output, but to get this into your computer you need a digitiser. A little machine like the TX2 doesn't have any place to plug a card in, but it does have USB and Firewire ports.

So we had a look around to see what options were available and came up with the Pinnacle Studio MovieBox USB. Pinnacle are one of the main contenders in the video editing market. This is a snazzy little unit (designed by Porsche) which acts as an interface between your external device like a camcorder or video player and the computer, interfacing (surprise surprise) via the USB socket.

Video editing software is supplied with it but I am lead to believe that it is not top notch. However if you wanted to save on costs just to get the feel for video editing you could just use this. You get two manuals with this set, one for the video editing software and one for the MovieBox itself, which is all we're really interested in, the instructions are quite simple: Plug the USB into the computer and the other leads into your source device and run the capture software and off you go.

With this system you have no choice about installing the video editing software, and after that you get to install the USB, to do this you have to have the MovieBox plugged in and running. My only problem here is that I have so many plugs and extensions that it was hard decision figuring out what to unplug.

Steve Turnbull
steve.turnbull@acornuser.com

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More Show News

National Hall, Olympia
September 25-27

This autumn sees a combined show this year with the Special Needs and Education Show events combining forces. There has been a switch to the bigger venue of Olympia too. Latest additions to the programme include TEEM, Teachers Evaluating Educational Multimedia, who have agreed to run a Curriculum Software Advice Centre at the event to advise teachers on all issues including how best to spend their e-Learning Credits.

Many subject associations have also confirmed their attendance in the Association Village where advice will be available from: ASE (Association for Science Education), DATA (Design and Technology Association), GA (Geography Association), HA (History Association), MA (Maths Association) and NATE (National Association for Teaching English) as well as PATOSS (Professional Association of Teachers of Students with Specific learning difficulties).

There is also a programme of more than 70 inset seminars from leading education experts: including London Schools Commissioner Professor Tim Brighouse. There's even free transport being laid on by the London Challenge, who will be organising free buses to Olympia from each of the 33 London Boroughs. Find out more at: **www.educationshowlondon.com** or get your free entry tickets by ringing 0870 429 4334.

Rights and learning

A former Army education officer who has devised a Web-based educational tool to help youngsters in their early school years is to take his innovation to Education Show London.

Shaun Micallef-Green has been running successful trials of his *Right2Learn* across the country since April. His aim is to provide a fun and stimulating means to encourage the desire to learn, while measuring individual needs in child education relating to the National Curriculum.

Said Shaun: "As a parent of five children aged from 5 to 17, the subject of education is very close to my heart. But I found it frustrating that there was a lack of specific information available to identify children's individual needs and the resources needed to address them. The end result was that I took a lot of time and effort with my own children and produced my own materials. I then began planning how to apply the lessons I'd learned with my own children, incorporated with my military and teaching experience, into a service which could benefit other parents and teachers."

Conscious of the fact that he lacked the necessary business experience, Shaun embarked on an MBA before setting up Right2Learn.

The **www.right2learn.co.uk** Web site comprises on-line, multiple choice tests in maths, English and science, produced and validated by a series of headteachers and teachers.

All the questions relate to key learning objectives from the National Curriculum and parents and teachers are able to receive a statistical report identifying the child's strengths, weaknesses and areas for improvement.

The main benefit to teachers is that this facilitates accurate target setting and lesson planning throughout the school year for each child, while being easy to implement. The results are also entered into a regional and national database to provide a percentile comparison, putting each child's achievement into context.

Phonics for all

Ransom Publishing will be launching *Living Phonics* at the show too. Devised by Dr Jenny Warland, a teacher who was given the task of teaching phonics to a group of children with special educational needs who were struggling to learn with existing resources.

Living Phonics is divided into three books for Reception, Year one and Year two with digital resources for teachers, whole class teaching on a whiteboard and computer use in the classroom.

Dr Warland will be available to discuss Living Phonics on the Ransom Publishing stand, and will also be running a free Open Event session on Living Phonics at 2pm on Saturday 27th.

Testing, testing, 1 2 3

On-screen ICT tests for Key Stage 3 are currently being developed by the Qualification and Curriculum Authority and will be just one of the many innovations up for discussion at Education Show London.

The QCA's latest move is revealed by its Head of Assessment Policy and Development Programme, Martin Ripley who believes it opens new possibilities for the way in which knowledge and understanding are assessed and will deliver his seminar, *ICT in Assessment*, on the opening day of the Show. "QCA is currently developing KS3 ICT tests, which will be delivered on-screen. These tests will be unlike any other tests ever developed in the UK and will assess much more than a student's technical abilities to carry out ICT functions. Through these, and the World Class Tests, we will have built a significant body of expertise and knowledge to influence the future of assessment."

To find out more about the QCA's latest views on assessment book in to Martin Ripley's session at 10am on Thursday September 25 or QCA Principal Officer Pauline Hoare's session on Observation and Assessment at 10am on Saturday September 27.

Bugs galore

Teachers will also be invited to get their teeth into one of the tastiest travelling science shows around. Lee Gibbs will be serving up edible crickets: both stir-fried and chocolate-coated. Lee is the brains behind the mouth-watering *BIG Bug Show*, a unique touring, hands-on science show, which is already proving a major hit in schools across the country. He commented: "The BIG Bug Show is an educational and entertaining one-man presentation where I encourage people to cuddle a cockroach, tickle a tarantula and crunch on a cricket! Those who are brave enough to eat them even get a sticker and certificate to take home as proof."

Lee's clients have included the Natural History Museum in London, the Edinburgh International Science Festival and Irish Science Week in the past and he is quick to point out that his work does have a serious side plus plenty of educational material.

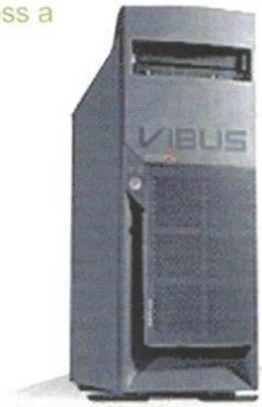
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I'll be watching you ...

Love them or hate them it's increasingly difficult to get away from them, you'll see them in your daily life watching the traffic, streets, shops or be enthralled by them on reality TV shows or the police's wildest videos and so on ... Closed Circuit Television (CCTV) is here to stay and the quality has improved from the grainy blurs originally seen on CrimeWatch. WebCam technology has similarly improved and allows for a surprisingly wide range of uses and users.

Here we're going to look at the more educational sites which allow teachers and pupils to utilise powerful pieces of equipment they would be very unlikely to access or visit places slightly out of the school budget.

The Web Cams here can be split into two varieties: animal watching and space gazing ...

Is anybody out there?

Now when I say space gazing I mean you could find yourself looking for the next near meteor miss, or just see how busy the High Street is!

Street web cams are fascinating and of all the ones featured here probably the most useful in the classroom. You can use these in a geography context to compare modes of transport, study the build up of traffic, the patterns in road use and so on. Or how about using the number of shoppers as a starting point for a datahandling session?

My favourite street cam comes from the Italian city of Genova, Genova WebCams, http://genova.webguide.it/ This comprises a collection of 20 cams from the Piazza Savonarola to the Ponte Calvi. Colourful and detailed you get a really good feel for the city and the intersections which could lead into some useful work with maps of the area. Cams are updated every 30 seconds and although this is an Italian site all you really need to know is that 'aggiornate' means update. If your Italian is up to it there are links to local sites on the city and the region's weather.



Closer to home is Hertfordshire Display (www.hdprint.co.uk/webcams.htm) which consists of two live streaming webcams in Ware. Street cams view the High Street while Shop Cams view the retail store which hosts the site and the cams.

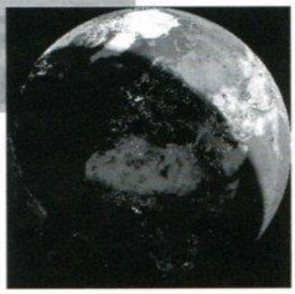


If this is all too exciting and you feel the need for wide open spaces them hop over to North Pole Web Cam (www.arctic.noaa.gov/gallery_np.html) two webcams have been deployed at the North Pole in the Arctic Ocean on an ice floe that is drifting. The webcams operate all summer on solar power and so do not operate during the total darkness of winter. Now not a lot happens here and due to this the cameras are updated every six and five hours respectively.

The cameras have been in use since April 29 this year and as well as data on the instruments used you can view the captured images to chart the change in temperature which is recorded on each picture or access the realtime data from the instruments. The detail is very good, the photographs are beautiful and the research very serious supplemented by maps, climate information and a huge range of photographs on exploration to the Northern Lights stopping off for information on archaeology and the native peoples on the way.



Moving onwards and upwards is Earth View (www.fourmilab.ch/cgi-bin/uncgi/Earth/action?opt=-p) which comprises live satellite image of the world from your specific coordinates. Alternatively, the same site will give you access to web cams showing where sunlight is at present, just click on the image for a closer view. A great science link for Key Stage 2.



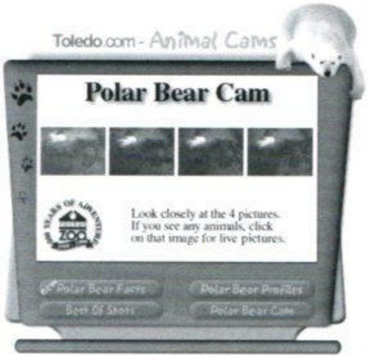
You start with an image of the world which shows you your latitude, longitude and altitude. You can zoom into the world map up to 10km out or opt to look at the view from 1,000,000 km above your real position on our little planet. It's stunning especially when you track the shadow of night time around the globe. But you can also change your viewpoint to seeing the world from the sun, from the moon or from the night side - it's amazing how the lights of a continent follows its contours. Then there are the other views: the topographical, the clouds (also available in infrared format), temperature or water vapour if you want to track weather fronts.

For the more adventurous you can change the satellite you're accessing from the huge list of the ones out there or even type in your own using by pasting in the orbital elements in NASA/NORAD 'two line element' format.

Then you could always fly to the Moon View (www.fourmilab.ch/cgi-bin/uncgi/Earth/action?opt=-m&img=Moon.evif) which follows a

similar format.

But satellites are not the only things we put out there. NASA have always had a superb site



(http://spaceflight.nasa.gov/) provides live coverage of all space shuttle missions, links to the space station and sighting opportunities.

Cute and cuddly

You'll have heard the adage 'never work with children and animals' so this section may be tempting fate ... However, webcams here give children a huge



opportunity to observe animals without disturbing them.

However, the web allows access to more unusual animals and most sites store images, so even if you miss something you can catch it 'almost' live. Especially useful if your source is on the other side of the world.

Toledo Zoo (www.toledo.com/zoocams) has the world's first hippoquarium cam. The way the cams are set up is very child friendly. Simply they provide four pictures and if you see any animals in one click on it. While you are waiting for something you can click the button for *Cool Hippo Facts* such as the fact that Nile hippos have been extinct in Egypt since 1816 and that they can live up to 40 years of age in the wide but well over 50 in captivity.

There are also profiles on the hippos on view and if you're tired of waiting a gallery of best shots. However, use the hippo facts to encourage children to work out the best time to catch the hippos in water. As well as the hippos, Toledo offer webcams of polar bears and Saddle-billed storks.

Another zoo you'll need to plan your visit to is Woodland Park Zoo in Seattle (www.zoo.org/bearcam/cam.html) as their grizzly bears are best seen between 10:00am and 2:30pm Seattle time. Not the bells and whistles of the Toledo site just realtime animals which is the same with The Elephant Sanctuary (www.tappedintoelephants.com) which provides a look at eight elephants as they go about their daily lives in Tennessee!

MontrealCAM Biodome (www.montrealcam.com/en-biodome.html) is another captive experience as you watch the penguins waddle around at Polar World. With updates every 20 seconds you can watch four species of penguins in what used to be the Olympic Velodrome built for the 1976 games! Any of these can be used as a literacy source for arguments against/for zoos, or used to examine environment and adaptation.

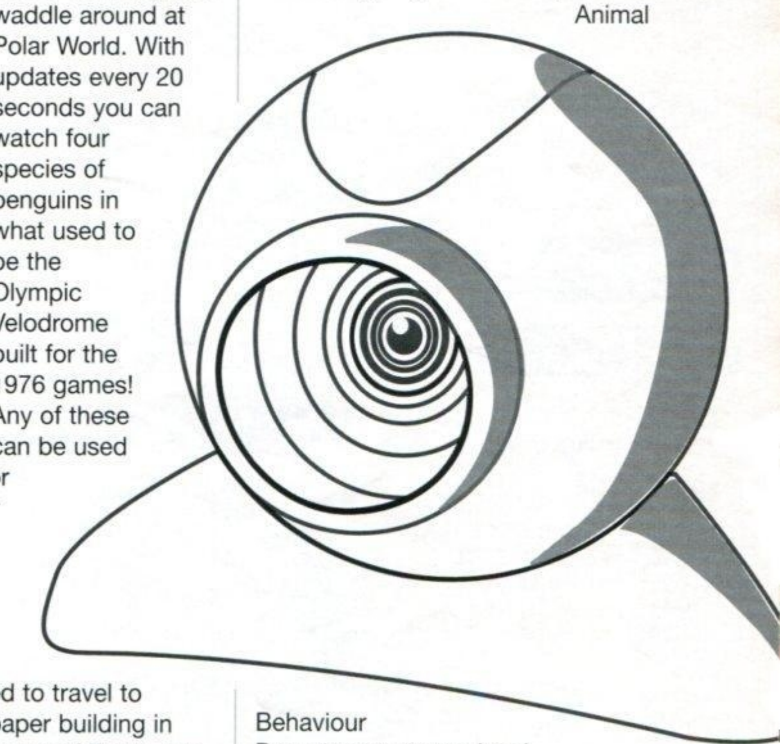
However, for sheer perseverance you need to travel to Australia and a newspaper building in Brisbane. This is the home of Frodo. No, not a hobbit but a Peregrine Falcon. Frodo Cam (http://thecouriermail.com.au/extras/frodocam/default.htm) gives live (and saved) footage. For us in the UK the best bit is that we can see the falcons even at night as they are lit by infrared light which they can't see. With updates every 30 seconds or 10 seconds if you have broadband access, this has been beautifully done by an organisation who found itself home to nesting falcons who



fancied a high rise condo to the more usual cliff-face. There are four eggs waiting to be hatched and the hunt is on for a suitable name for Mrs Frodo.

And now?

You can always set up your own webcam in the playground or even bird box relatively easily and the results are fascinating. If you want help with this the Animal



Behaviour Department at your local university should be able to advise you. Then put your results on to your website and join the club.

Pam Turnbull
education@acornuser.com

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C6578**	colour	£15.92
C6614**	black	£9.49
C6615**	black	£10.50
C6625**	colour	£14.92
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Computer Active, Issue 121

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Your comments on Castle

It is noticeable that the Castle Technology press release makes no mention of RISCOS Ltd and Select. Is this ominous or am I being paranoid? Where will Castle be taking RISC OS? Will we all have to buy an Iyonix now?

Does Castle see itself as a new Acorn or will it let other developers live alongside them? On another tack we may have secured the OS and hardware front but what of new software and, although to me minor, import games?

Doug Thompson (via e-mail)

Since the original press release Castle have established that all existing licences to use RISC OS will be supported. Jack himself has indicated that there is no threat to RISCOS Ltd. So, if you are paranoid, it's okay they're not out to get you.

Wisdom

If Castle act wisely, with the interests of RISC OS at heart and not just their own commercial needs, it could be brilliant news. For RISC OS and for people who don't currently use RISC OS.

Janet Bailey (via e-mail)

I don't think any successful company operates from a position of altruism. There's no point starving yourself to death just to be nice, because once you're dead you can't be nice anymore. However successful companies do operate from the viewpoint of giving people what they need and want (even if some organisations brainwash people into thinking that's what they want).

Community

So Castle have got around to at last making sure that RISC OS is in the hands of someone who really cares about what this community wants. Since that fateful day that the get-rich-quick merchants closed down Acorn we have been in a bit of a limbo state which first saw the false dawn of a full blown buy-out and then the setting up of RISCOS Ltd.

Now opinions vary about what RISCOS Ltd have actually done but I believe they have made the most of a difficult situation and brought RISC OS 4 and then Select to market but it was apparent that they were running out of options and with little funds to get a full 32-bit operating system to market.

So with the launch of Iyonix and now the purchase of RISCOS, Castle have finally become the new "Acorn" and if they are sensible then the market can still work with more than one manufacture and RISCOS Ltd can become the value added contributor to our operating system via Select 4.xx, 5.xx,6.xx and so on.

Well done Jack and the team.

Doug Webb (via e-mail)

Doubt

All round, it's excellent news, but I think it will cast doubt over the future of other companies, namely MicroDigital. The FAQ by Castle says that they will be able to continue making RISC OS 4 computers, I think it's ominous that they say 'RISC OS 4' not RISC OS in general.

Garry Taylor (via e-mail)

Pity

It is pity that Castle got it, instead of another company from the desktop market, which was also in the race. This other company had plans to develop Browse and Java for RISC OS further, which does not seem to be something Castle will do.

Julian G. F. Zimmerle (via e-mail)

Why on earth bring Browse back? It's been years since any work was done on it and to bring it up to date would be very costly indeed. In the days when there was a wide choice Browse was second from the bottom in my list of favourite browsers.

Relieved

As for Java, apart from a very few Web sites, it just hasn't really made an impression. It's unnecessarily complex for achieving results which can be done easier in other ways. Java is one lack in RISC OS Web browsing where I don't feel any pain at all.

I was very relieved to hear that a company that is dedicated to the RISC OS desktop is now the owner. If you look at the last couple of years, only Castle can point to any progress. Sad but true.

Edward Naish (via e-mail)

Potential

Potentially a good thing but I'm scared that Castle will become the Microsoft of the RISC OS world. If our market is to survive we need computers made by more than one company. I would like to see RiscStation given a licence to produce computers running RISC OS 5.

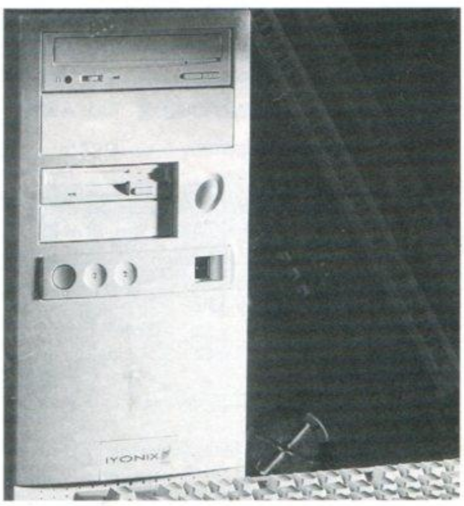
Their R7500 series has always been a good-value entry-level computer. By no stretch of the imagination could the cheapest Iyonix be considered entry level. I would like to see a RISC OS 5 powered R7500 this time next year.

And where does this leave our laptop market? Still no news on the RiscStation portable and who is going to buy a Microdigital Alpha if RISC OS 5 is going to be more widely available?

This may be the start of a great new future for RISC OS or it may be another nail in the coffin. It's too early to know either way.

Mark Syder (via e-mail)

Why should anybody be given anything for free? If RiscStation should be given it why not MicroDigital? Why not me? Or you? It's not how things work.



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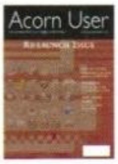
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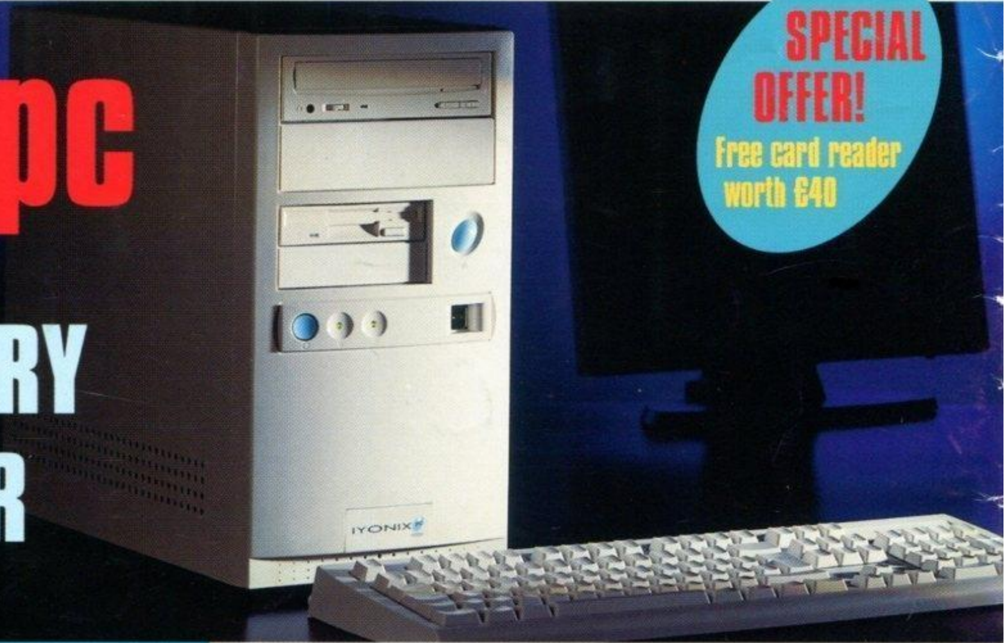
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